

COMBINATION AIR/MANUAL ECONOMY GREASE DISPENSER

BACKGROUND OF THE INVENTION

(1) Field of the Invention

The present invention relates to a grease dispensing system comprising a manually powered pump and a compressed air powered pump, in particular a system that comprises a manually primed pump that supplies grease to the system and a compressed air powered pump that dispenses grease from the system.

(2) Description of the Related Art

Grease dispensing systems of the type provided by the present invention come in a variety of types and sizes. One type of conventional grease dispensing system is the bucket pump pressure dispensing system. This system includes a manually primed pump secured to a circular drum cover. The drum cover is adapted to be attached over the opening of a cylindrical lubricant storage container, with a bottom end of the pump extending into and adjacent the bottom of the container.

With the drum cover secured in place, a manual handle at the top of the pump is pulled upward by an operator. This causes a piston in a pump cylinder to withdraw from the cylinder, resulting in the lubricant in the container being drawn into the volume created in the cylinder by the withdrawing piston. When the handle reaches the limit of its extraction from the pump cylinder, it is released by the operator and the piston is spring-biased back into the cylinder. The spring force of the piston moving back into the cylinder causes the lubricant now filling the cylinder to displace a one-way check valve in the piston and to flow past the check valve and through a conduit extending through the pump piston.

A delivery hose is attached to the manual handle of the pump and is in fluid communication with the piston conduit. The lubricant forced into the piston conduit travels through the conduit and the attached delivery hose. The lubricant is then conveyed through the hose to a manually operated booster valve at the opposite end of the hose.

The booster valve includes a lubricant dispensing barrel, a plunger mechanism that reciprocates through the barrel, and a manually operated lever that controls the reciprocation of the plunger. With the lever at an atrest position, the lubricant conveyed through the hose is supplied to the booster valve and fills an area at an entrance end of the barrel. When the manual lever is depressed by the operator to its fully closed position, the plunger is caused by the movement of the lever to slide through the entrance portion of the barrel forcing the lubricant supplied to the barrel to pass through and be dispensed from the barrel. The manual pumping of the lever by the operator of the booster valve develops a high pumping pressure in the lubricant being dispensed through the valve barrel. However, the operator must repeatedly manually pump the lever in order to dispense large quantities of the lubricant from the booster valve barrel.

A second type of conventional grease dispensing system is the air/grease gun. The air/grease gun comprises a barrel that is fed with lubricant and a plunger that reciprocates through the barrel to force the lubricant through the barrel from the force of compressed air supplied to the gun and to dispense the lubricant from the barrel. The air/grease gun is not supplied with

grease through a hose from a lubricant bucket, but rather is supplied from a container tube attached to the air/grease gun.

The container tube includes a spring-biased piston that forces lubricant from the tube into an area at the entrance end of the air/grease gun barrel. A piston is attached to the end of the plunger opposite the end that reciprocates through the entrance area of the barrel. The piston is spring-biased to an at-rest position in a compressed air cylinder.

The air/grease gun is supplied with compressed air through a hose connection, and selective operation of a trigger valve by an operator supplies compressed air to the cylinder causing the piston to move against the spring bias. The movement of the piston causes the plunger to move through the entrance of the barrel, forcing the lubricant through the barrel. The plunger forcing the lubricant through the barrel develops a high pumping pressure of lubricant from the air/grease gun with much less operator effort than is involved in pumping lubricant from the booster valve of the bucket pump systems.

However, the container tube of lubricant attached to the air/grease gun makes the gun awkward to operate. The dimensions of the container tube containing the lubricant supply prevent the air/grease gun from gaining access to even slightly confined areas. In addition, the weight of the lubricant contained in the tube adds substantially to the overall weight of the air/grease gun, and the supply of lubricant is small and must be frequently replenished.

It is an object of the present invention to provide a lubricant dispensing system that combines the beneficial features of both the pump bucket dispensing systems and the air/grease gun dispensing systems while eliminating the undesirable features of the two systems.

The objectives are achieved by providing a combined air/manual lubricant dispensing system that combines the increased lubricant supply and the lubricant dispenser flexibility of the manual bucket pump and booster valve system with the effortless lubricant dispensing operation of the compressed air/grease gun.

SUMMARY OF THE INVENTION

The air/manual economy grease dispenser of the present invention provides a unique combination of a manual bucket pump lubricant dispensing system and a compressed air/grease gun lubricant dispensing system.

The manual bucket pump serves as the lubricant supply in the lubricant dispensing system of the present invention. The bucket pump includes a cover adapted to be installed over an opening of a lubricant container. The manual pump is cylindrical in shape and is secured to the cover. With the cover secured to the lubricant container, one end of the pump extends into the lubricant and rests on the bottom of the container.

A manual handle is provided at the opposite end of the pump. The handle is connected to a piston rod and piston that extend into the cylinder of the pump. As the handle and attached piston are retracted up out of the pump cylinder, the volume in the cylinder evacuated by the piston fills with lubricant from the container. When the handle and piston rod have been retracted from the cylinder to their maximum extent, the operator releases the handle and a spring biasing the piston rod in the cylinder causes the piston to extend back into the cylinder. The piston moving back into the cylinder creates a